



Natural Resources Conservation Service
P.O. Box 2890
Washington, D.C. 20013

Weekly Report - Snowpack / Drought Monitor Update

Date: 8 December 2011

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: [Snow Water-Equivalent](#): Two areas over the Pacific Northwest reflect SWE that has generally decreased by one bin category this week. A box over the Southwest showed an increase in SWE by one category as a split flow in the jet stream has moved weather systems into Canada and into the Southern Tier States (Fig. 1). [7-Day Snow Depth Change](#) ending this morning shows up to 1 foot increase in snowpack over 4-Corners States. Slight losses are noted over the Cascades and Northern Rockies (Fig. 1a).

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly shows temperatures considerably colder than normal over all Oregon and Washington as the coldest Arctic air mass of the season plunged over the Central and Southern Rockies (Fig. 2). [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over north-central California ($>+5^{\circ}\text{F}$) and the greatest negative departures over south-central Wyoming ($<-20^{\circ}\text{F}$) (Fig. 2a).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest totals scattered over parts of Arizona and New Mexico (Fig. 3). However, in terms of percent of normal, much of the eastern half of the Western States experienced a surplus this week (Fig 3a). With the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal snow pattern shows moisture surpluses that favor the Southwest and easternmost Tier States. Most of Oregon reflects a decreasing moisture trend since last week (Fig. 3b).

Weekly Weather Summary: As the week commenced, a strong storm system in the Northeast quickly departed, bringing tranquil weather to the East and Southeast for the remainder of the week. In the Southwest, however, an upper-air low developed and intensified, generating strong winds in the Southwest, especially southern California, and gradually spreading precipitation and colder air into the Four Corner States. Parts of Arizona, New Mexico, and southern Colorado received between 1 and 2.5 inches of precipitation. As this system tracked eastward into the Nation's midsection over the weekend, moderate to heavy precipitation (more than 2 inches) fell from central Texas northeastward into the eastern Great Lakes by Tuesday morning. Heavy rains (more than 4 inches) were reported in parts of northeastern Texas, northwestern Louisiana, southern and eastern Arkansas, western sections of Tennessee and Kentucky, and southeastern Missouri. A second band of light to moderate precipitation (1 to 2 inches) occurred from central Kansas northeastward into southern Wisconsin. In contrast, little or no precipitation fell on the West, northern Plains and upper Midwest, and Southeast (from southeastern Louisiana eastward to the Carolinas). Temperatures averaged below normal in the western half of the Nation and in the Southeast, while milder weather was limited to the Northeast, Great Lakes region, and northern Plains.

The Southwest: Early in the period, a strong upper-air low developed and intensified across the region. The low initially brought strong winds to parts of the region, including Santa Ana winds gusting to near 100 mph in southern California. Later, the storm generated widespread light to

Weekly Snowpack and Drought Monitor Update Report

moderate precipitation (0.3 to 1.5 inches), enough to prevent deterioration but not enough to improve conditions (e.g. status quo). Some exceptions to this were in central Arizona (up to 2.6 inches) where 90- and 180-day deficits were close to zero (D1 to D0), in southwestern New Mexico (two straight weeks of 0.5 to 1.5 inches of precipitation) where small surpluses existed out to 180-days (D3 to D2), and in northwestern New Mexico (0.5 to 1 inches this week, 0.2 to 0.5 inches last week) where the Water Year SNOTEL Snow Water Content (SWC) stood at 124 percent of normal in the Rio Chama Basin. So far this water year, the mountain basins in central Arizona and northern New Mexico have observed above normal basin average precipitation and SWC. Accordingly, a general one-category improvement was made on the D0 to D2 areas.

The Northwest: In stark contrast to last week's moderate to heavy precipitation from the Cascades westward, much quieter and cooler weather prevailed across the Northwest this week. Although it is still early in the water year (since October 1), precipitation has averaged about half to two-thirds of normal in the SNOTEL mountain basins of Oregon, California, and Nevada, according to the USDA/NRCS. And in the Intermountain West, precipitation has been even more spotty and minimal. During the past 90- and 180-days, 25 to 50 percent of normal precipitation, and in some locations 10 to 25 percent, have fallen, and these D0 "watch" areas were expanded to include northeastern California, northwestern Nevada, and south-central Washington. Fortunately, normal are generally low in this region thus generating relatively small deficits. Precipitation, however, will be needed soon during the normally wet winter months to prevent degradation of conditions. Author: David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

A comprehensive narrative describing drought conditions for the nation can be found at the end of this document.

Drought Impacts Definitions

The possible impacts associated with **D4 (H, A)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (H, A)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (H, A)** drought are focused on water shortages common and water restrictions imposed and crop or pasture losses likely. The possible impacts associated with **D1 (H, A)** drought are focused on water shortages developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 4 through 4b).

Soil Moisture

Soil moisture (Figs. 5a and 5b), is simulated by the [VIC macroscale hydrologic model](#). The detailed, physically-based VIC model is driven by observed daily precipitation and temperature maxima and minima from approximately 2130 stations, selected for reporting reliably in real-time and for having records of longer than 45 years (and various other criteria). Another good resource can be found at: <http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>.

Soil Climate Analysis Network (SCAN)

Figure 6 provides supplemental data on soil conditions (moisture and temperatures at various depths from 2 inches to 80 inches. For more information about SCAN see ([brochure](#)).

Weekly Snowpack and Drought Monitor Update Report

U.S. Historical Streamflow

This map, (Fig. 7) shows the 7-day average streamflow conditions in hydrologic units of the United States and Puerto Rico for the day of year. The colors represent 7-day average streamflow percentiles based on historical streamflow for the day of the year. Thus, the map shows conditions adjusted for this time of the year. Only stations having at least 30 years of record are used. Sub-regions shaded gray indicate that insufficient data were available to compute a reliable 7-day average streamflow value. During winter months, this situation frequently arises due to ice effects. The data used to produce this map are provisional and have not been reviewed or edited. They may be subject to significant change.

State Activities

State government drought activities can be tracked at the following URL: <http://drought.unl.edu/mitigate/mitigate.htm>. NRCS SS/WSF State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SS/WSF information - <http://www.wcc.nrcs.usda.gov/cqibin/bor.pl>. Additional information describing the products available from the Drought Monitor can be found at the following URL: <http://drought.unl.edu/dm/> and <http://www.drought.gov>.

For More Information

The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>. Reports from 2007 are available on-line while ones from 2001-2006 can be acquired upon request.

This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

Douglas Lawrence
Deputy Chief, Soil Survey and Resource Assessment

Weekly Snowpack and Drought Monitor Update Report

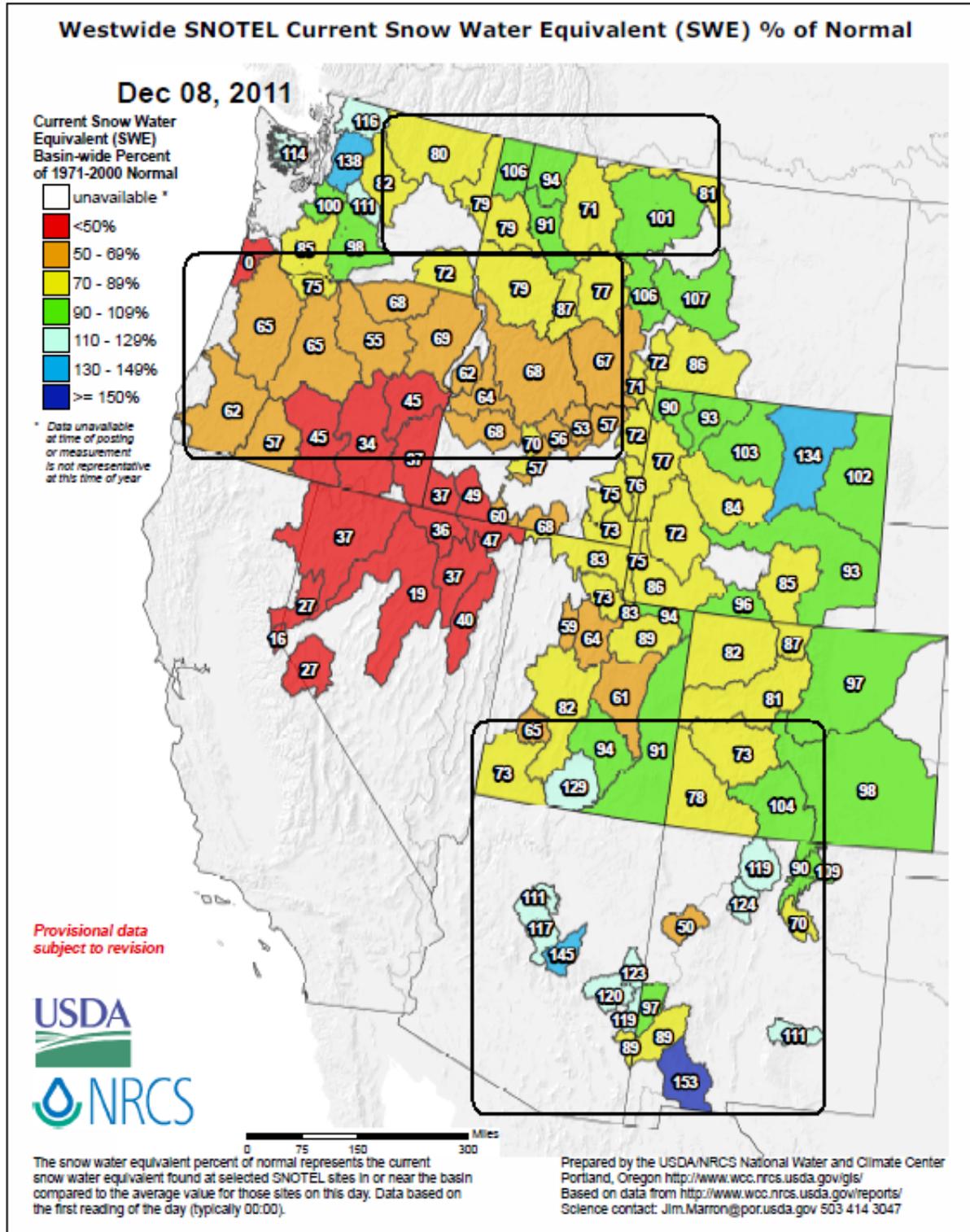


Fig. 1: **Snow Water-Equivalent**: The two northern boxes reflect SWE that has generally decreased by one bin category. The box over the Southwest showed an increase by one category this week as a split flow in the jet stream has moved weather systems into Canada and the Southern Tier States.

Weekly Snowpack and Drought Monitor Update Report

SNOTEL 7-Day Snow Depth Change (Inches)

Dec 08, 2011

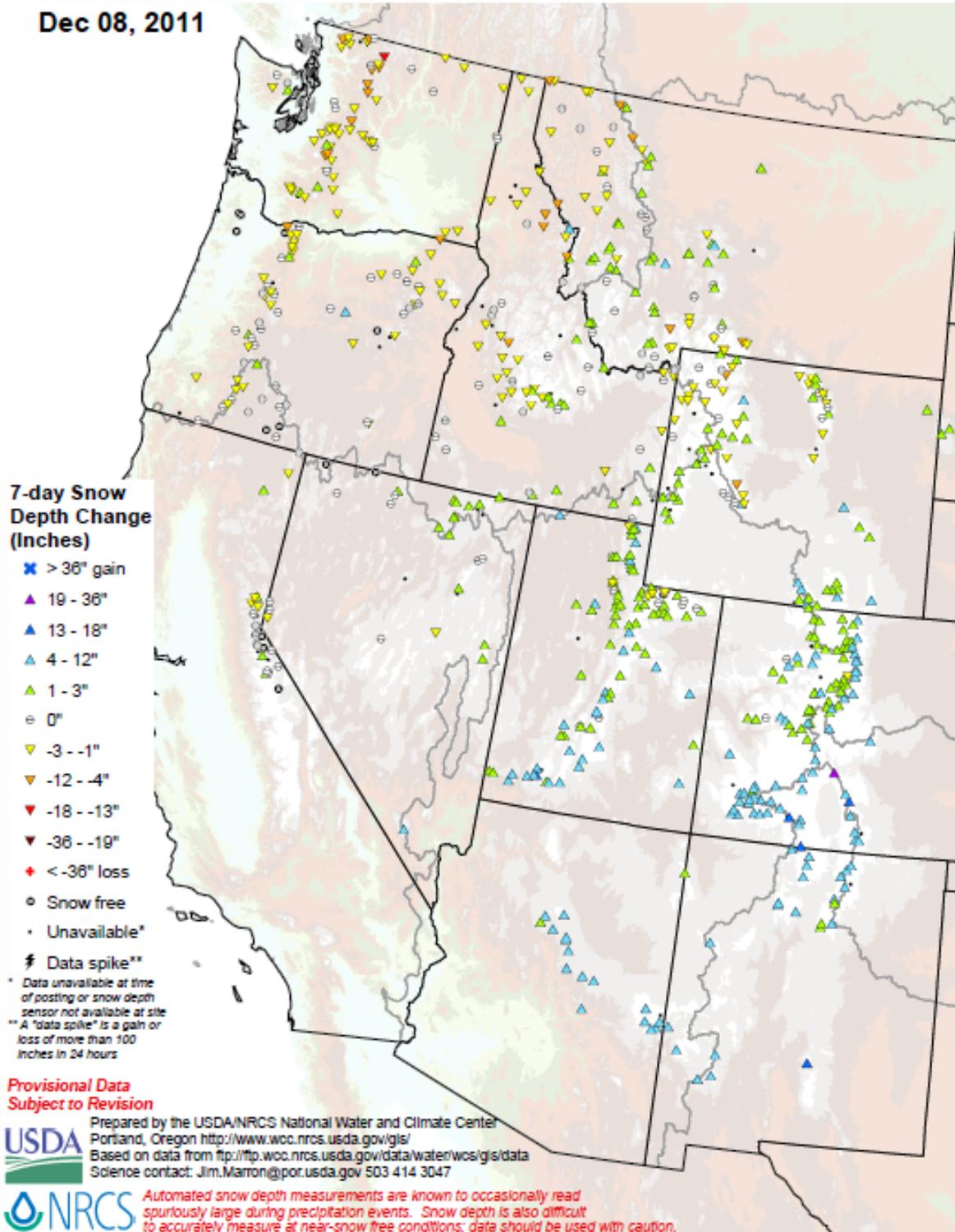


Fig. 1a: 7-Day Snow Depth Change ending this morning shows up to 1 foot increase in snowpack over 4-Corners States. Slight losses are noted over the Cascades and Northern Rockies.

Weekly Snowpack and Drought Monitor Update Report

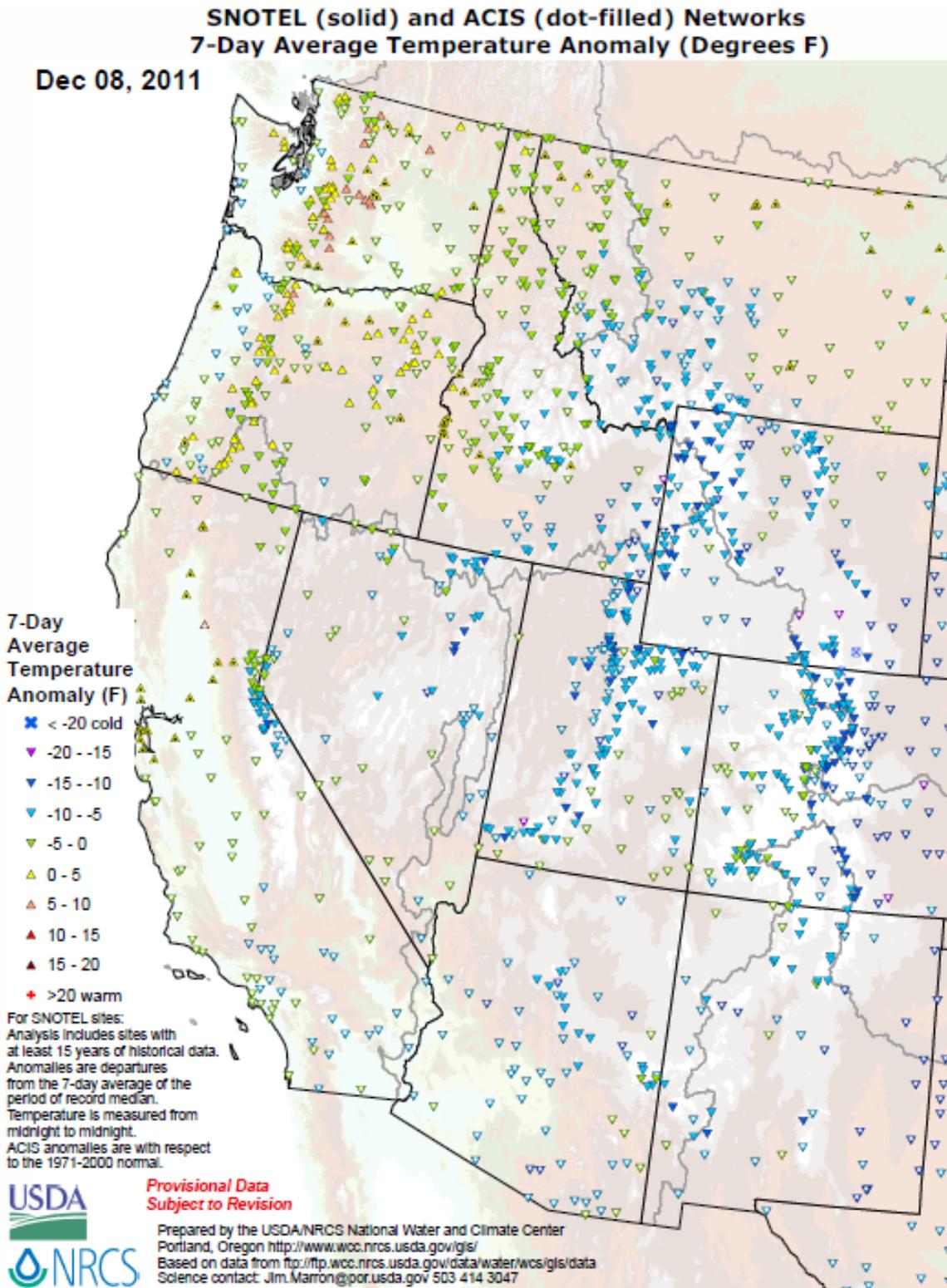
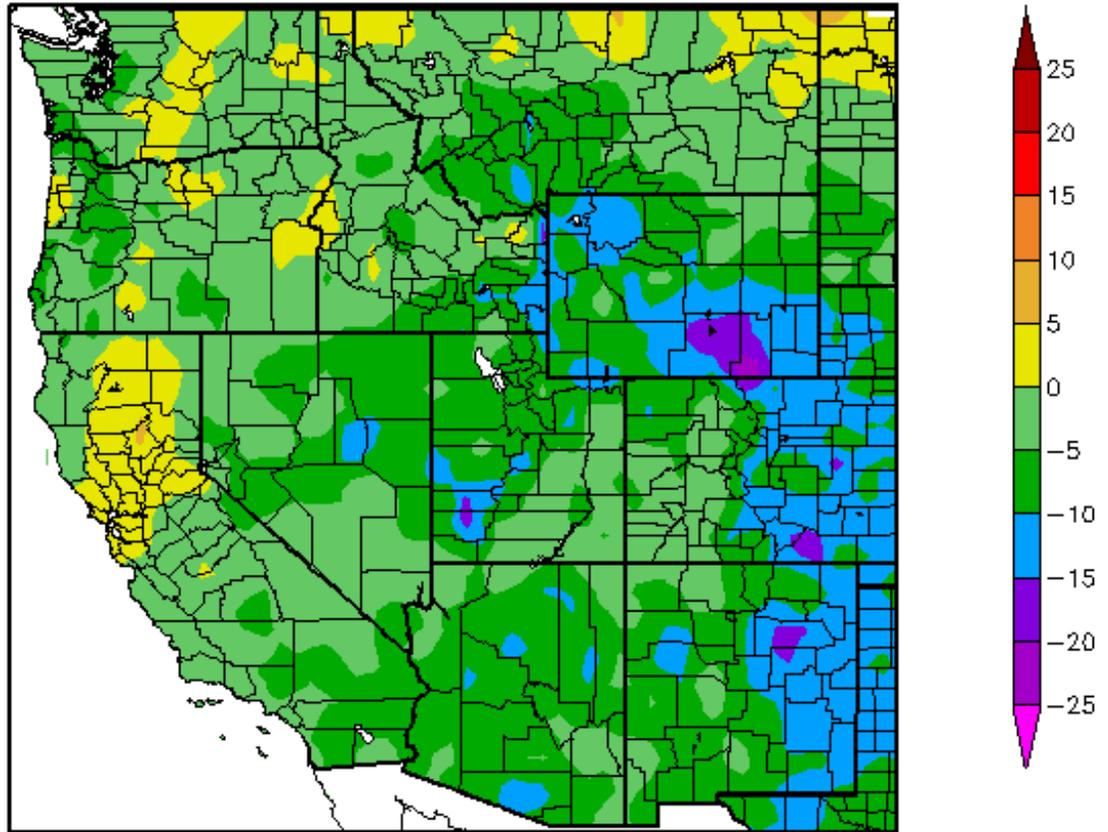


Fig. 2: **SNOTEL** and ACIS 7-day temperature anomaly shows temperatures considerably colder than normal over all Oregon and Washington as the coldest Arctic air mass of the season plunged over the Central and Southern Rockies.

Departure from Normal Temperature (F)
12/1/2011 – 12/7/2011



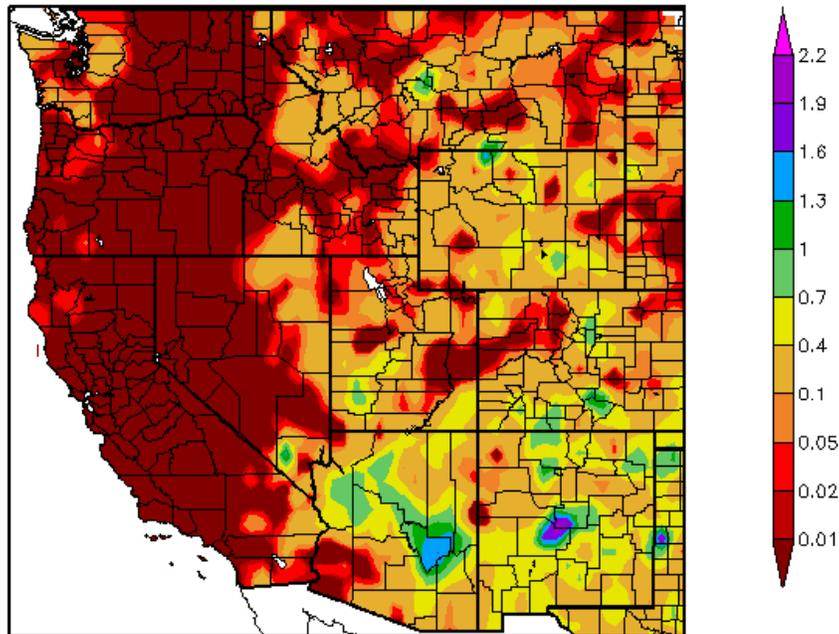
Generated 12/8/2011 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2a: ACIS 7-day average temperature anomalies show the greatest positive temperature departures over north-central California (>+5°F) and the greatest negative departures over south-central Wyoming (<-20°F).

Weekly Snowpack and Drought Monitor Update Report

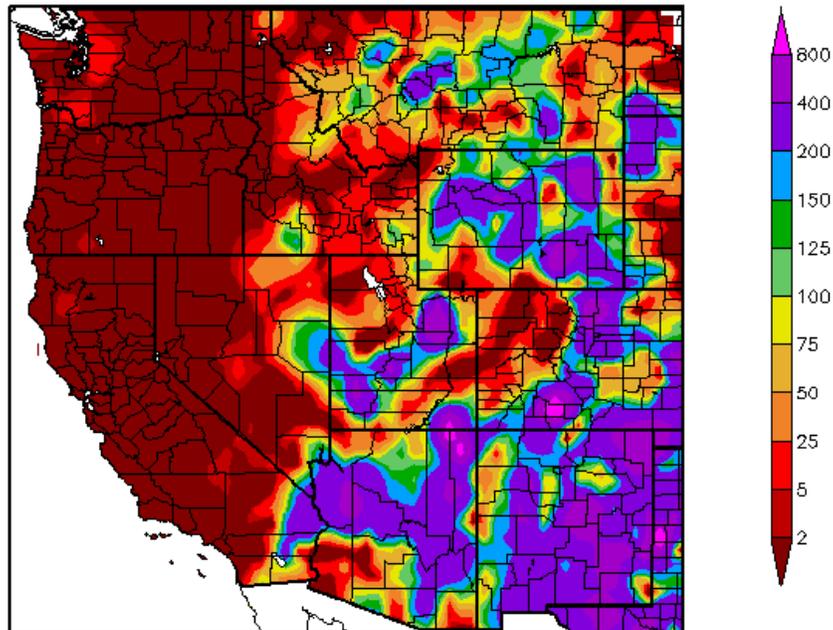
Precipitation (in)
12/1/2011 - 12/7/2011



Generated 12/8/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
12/1/2011 - 12/7/2011



Generated 12/8/2011 at HPRCC using provisional data.

Regional Climate Centers

Fig. 3 and 3a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest totals scattered over parts of Arizona and New Mexico (Fig. 3). However, in terms of percent of normal, much of the eastern half of the Western States experienced a surplus this week (Fig 3a).

Weekly Snowpack and Drought Monitor Update Report

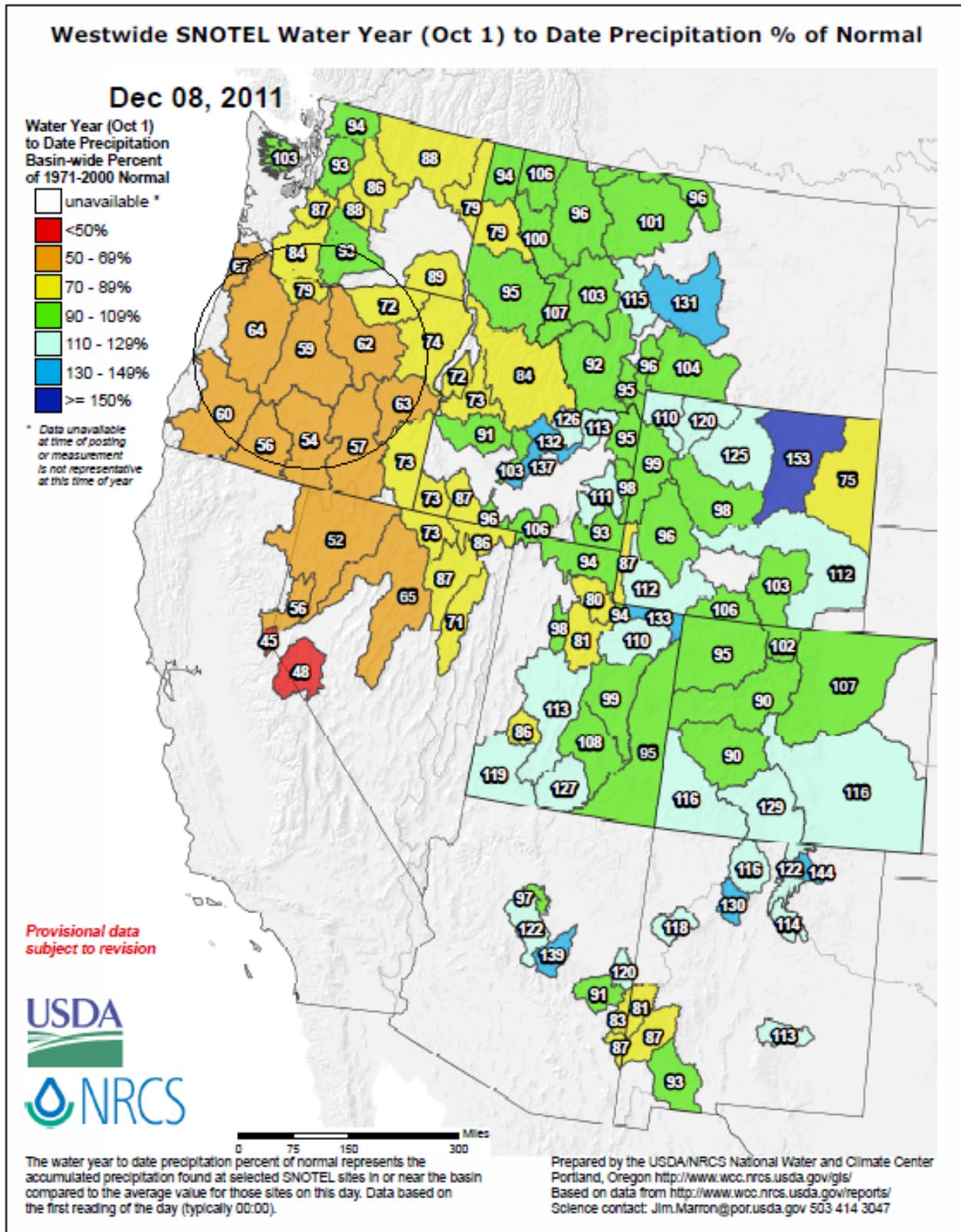


Fig 3b: With the start of the **2012 Water-Year** that began on 1 October 2011, the seasonal snow pattern shows moisture surpluses that favor the Southwest and easternmost Tier States. The circled area reflects a decreasing moisture trend since last week.

U.S. Drought Monitor

December 6, 2011

Valid 7 a.m. EST

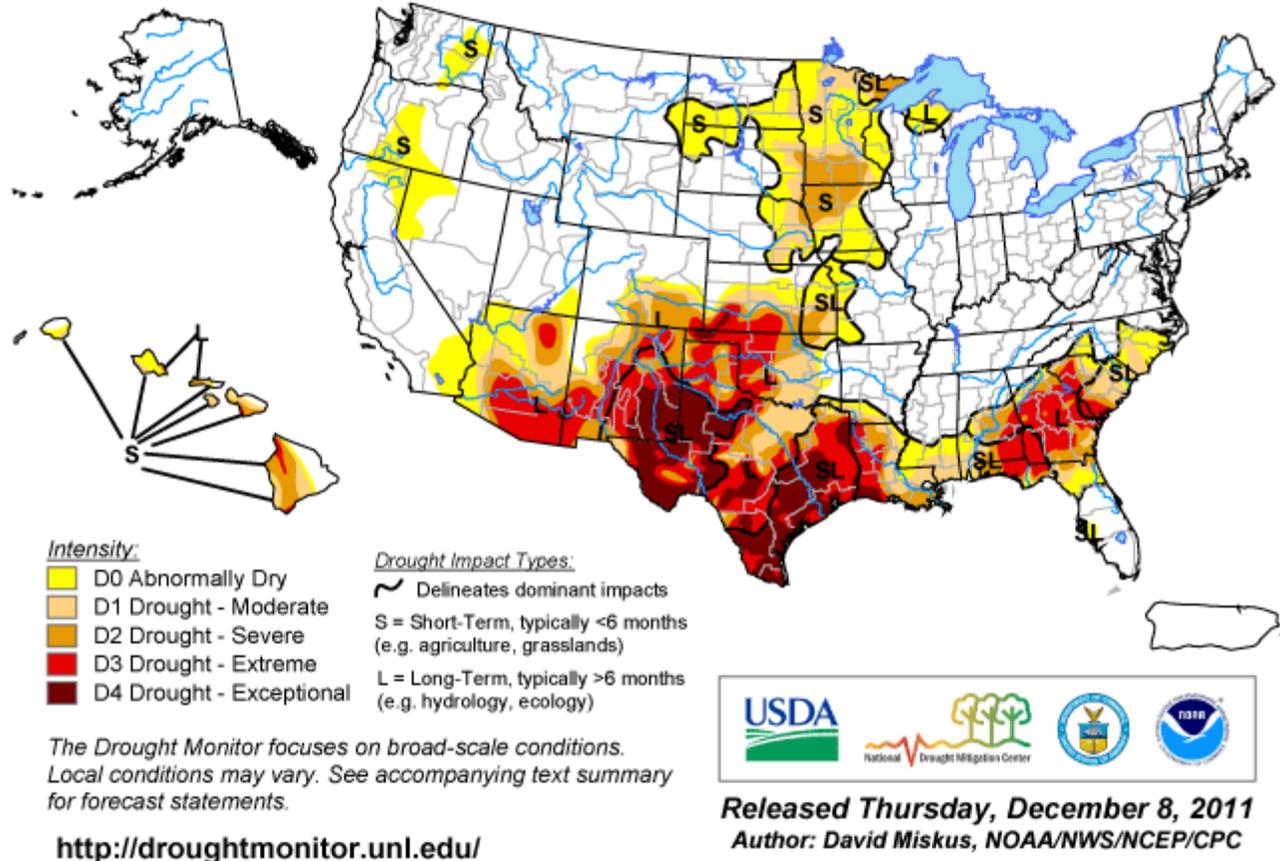


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over New Mexico, Texas, Oklahoma, extreme SW Kansas, and western Louisiana. For more drought news see: [Drought Impact Reporter](#).

Agriculture

[Drought hurts yield, helps quality of Texas grapes](#)

Nov 27, Texas. Statewide, grape production was expected to be about 4,450 tons this year, compared to 8,900 tons in 2010, as drought reduced the number of grape clusters and grape size, according to a viticulturist with the Texas AgriLife Extension Service in Lubbock. But on the bright side, drought caused the grapes to be sweeter, resulting in increased quality that will be remembered for years.

[Droughts wreaking havoc on local hay growers, buyers](#)

Nov 20, North Florida. Drought limited hay production in North Florida during the summer, but producers also transported hay to Texas since hay was in extremely short supply there, leading to higher prices for a smaller hay supply in North Florida.

[NAPI warns of hay shortage, sellers running out of feed](#)

Nov 22, New Mexico. The Navajo Agricultural Products Industry expects to be out of alfalfa hay temporarily. Drought depleted alfalfa hay production this summer, leading to tight supplies through next year.

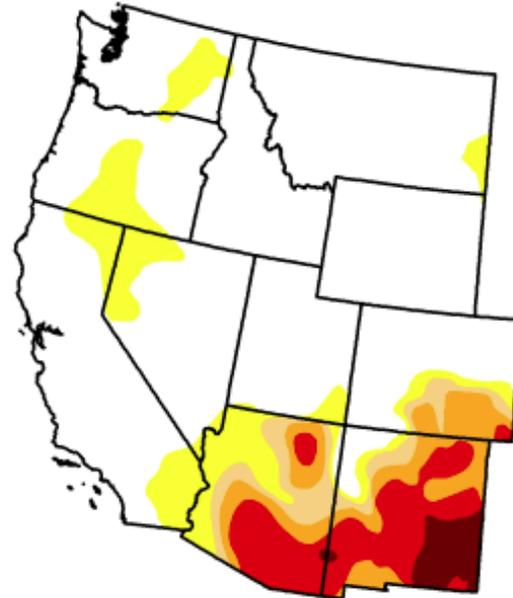
U.S. Drought Monitor

West

December 6, 2011
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	70.25	29.75	18.13	14.57	9.02	1.94
Last Week (11/29/2011 map)	72.29	27.71	18.55	14.99	9.48	1.96
3 Months Ago (09/06/2011 map)	70.06	29.94	19.69	14.94	10.00	4.23
Start of Calendar Year (12/28/2010 map)	73.26	26.74	11.98	0.89	0.00	0.00
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (11/30/2010 map)	72.76	27.24	5.82	0.87	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Released Thursday, December 8, 2011

David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

<http://droughtmonitor.unl.edu>

Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Regionally there was a slight improvement in D3 and D4 drought condition this week.

Weekly Snowpack and Drought Monitor Update Report

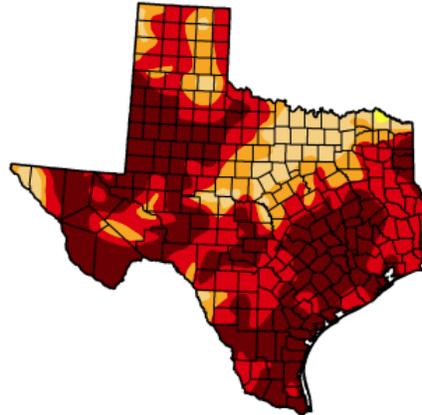
U.S. Drought Monitor Texas

December 6, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.83	90.33	76.55	43.29
Last Week (11/29/2011 map)	0.00	100.00	100.00	94.23	82.66	52.67
3 Months Ago (09/06/2011 map)	0.00	100.00	99.93	99.01	95.68	81.06
Start of Calendar Year (12/28/2010 map)	7.89	92.11	69.43	37.46	9.59	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	99.16	96.65	85.75
One Year Ago (11/30/2010 map)	29.55	70.45	32.51	14.28	0.81	0.00

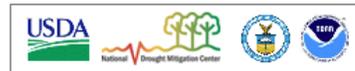
Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, December 8, 2011

David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

Fig. 4b(1): Currently, ~52% of [Texas](#) is experiencing “Exceptional” D4 drought. ~76% of the state is in D3 and D4 drought! Overall, this represents a 9% improvement in D4 this week.

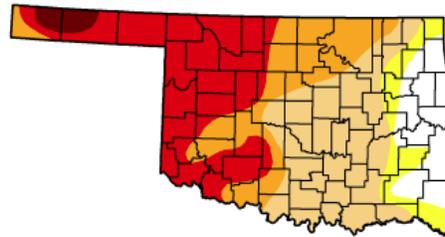
U.S. Drought Monitor Oklahoma

December 6, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	12.56	87.44	80.27	50.88	32.08	2.11
Last Week (11/29/2011 map)	7.33	92.67	85.70	59.58	39.92	10.27
3 Months Ago (09/06/2011 map)	0.00	100.00	100.00	100.00	85.44	69.15
Start of Calendar Year (12/28/2010 map)	13.82	86.18	47.90	1.50	0.00	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	100.00	78.97	66.42
One Year Ago (11/30/2010 map)	46.34	53.66	3.13	0.00	0.00	0.00

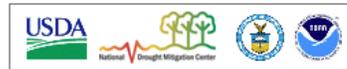
Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, December 8, 2011

David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

Fig. 4b(2): Currently, over 10% of [Oklahoma](#) is experiencing “Exceptional” D4 drought. Over 32% of the state is in D3 and D4 drought! This week saw a 8% improvement in D4.

Weekly Snowpack and Drought Monitor Update Report

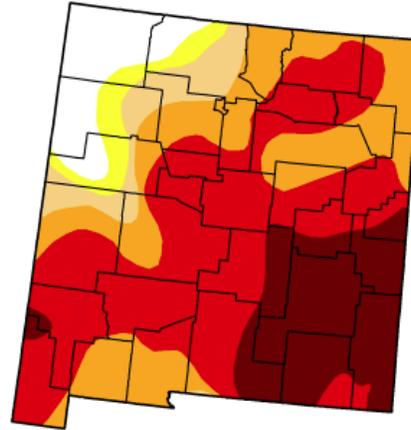
U.S. Drought Monitor
New Mexico

December 6, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	8.33	91.67	87.88	81.60	58.70	18.39
Last Week (11/29/2011 map)	6.28	93.72	90.69	85.60	62.97	18.39
3 Months Ago (09/06/2011 map)	0.00	100.00	100.00	89.27	72.19	38.37
Start of Calendar Year (12/28/2010 map)	6.16	93.84	40.40	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	96.40	88.99	69.61	35.13
One Year Ago (11/30/2010 map)	68.73	31.27	0.60	0.00	0.00	0.00

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 D2 Drought - Severe	



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, December 8, 2011

David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

Fig. 4b(3): Currently, 18% of New Mexico is experiencing “Exceptional” D4 drought. Nearly 58% of the state is in D3 and D4 drought. Overall, this represents a 5% improvement in D3 this week.

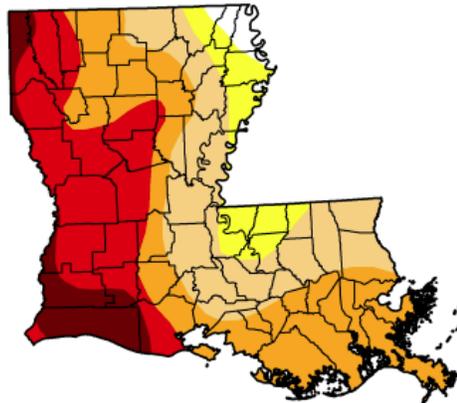
U.S. Drought Monitor
Louisiana

December 6, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.71	98.29	90.37	64.80	32.55	7.86
Last Week (11/29/2011 map)	0.91	99.09	89.40	51.92	42.44	15.76
3 Months Ago (09/06/2011 map)	44.88	55.12	44.43	35.94	27.14	17.01
Start of Calendar Year (12/28/2010 map)	0.00	100.00	87.22	69.72	40.99	0.00
Start of Water Year (09/27/2011 map)	45.37	54.63	44.43	35.94	27.14	16.37
One Year Ago (11/30/2010 map)	11.05	88.95	66.68	49.86	17.93	0.00

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 D2 Drought - Severe	



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, December 8, 2011

David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

Fig. 4b(4): Currently, ~8% of Louisiana is experiencing “Exceptional” D4 drought. Over 32% of the state is in D3 and D4 drought. Overall, this represents a 8% improvement in D4 the week.

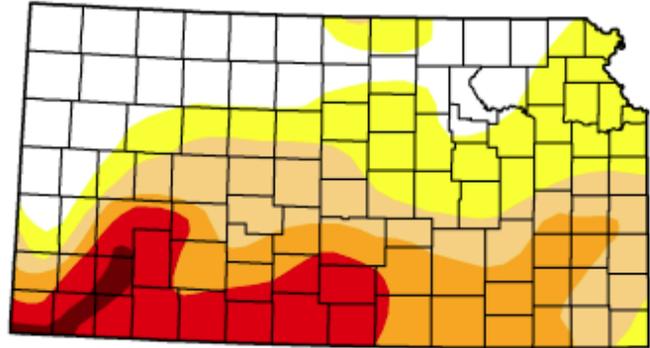
U.S. Drought Monitor

Kansas

December 6, 2011
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	26.32	73.68	50.09	30.70	14.34	1.47
Last Week (11/29/2011 map)	15.33	84.67	73.42	42.16	17.61	2.78
3 Months Ago (09/06/2011 map)	28.64	71.36	62.33	49.90	31.86	17.46
Start of Calendar Year (12/28/2010 map)	17.82	82.18	43.85	3.48	0.00	0.00
Start of Water Year (09/27/2011 map)	16.39	83.61	66.03	48.78	28.54	17.63
One Year Ago (11/30/2010 map)	52.65	47.35	20.06	0.00	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

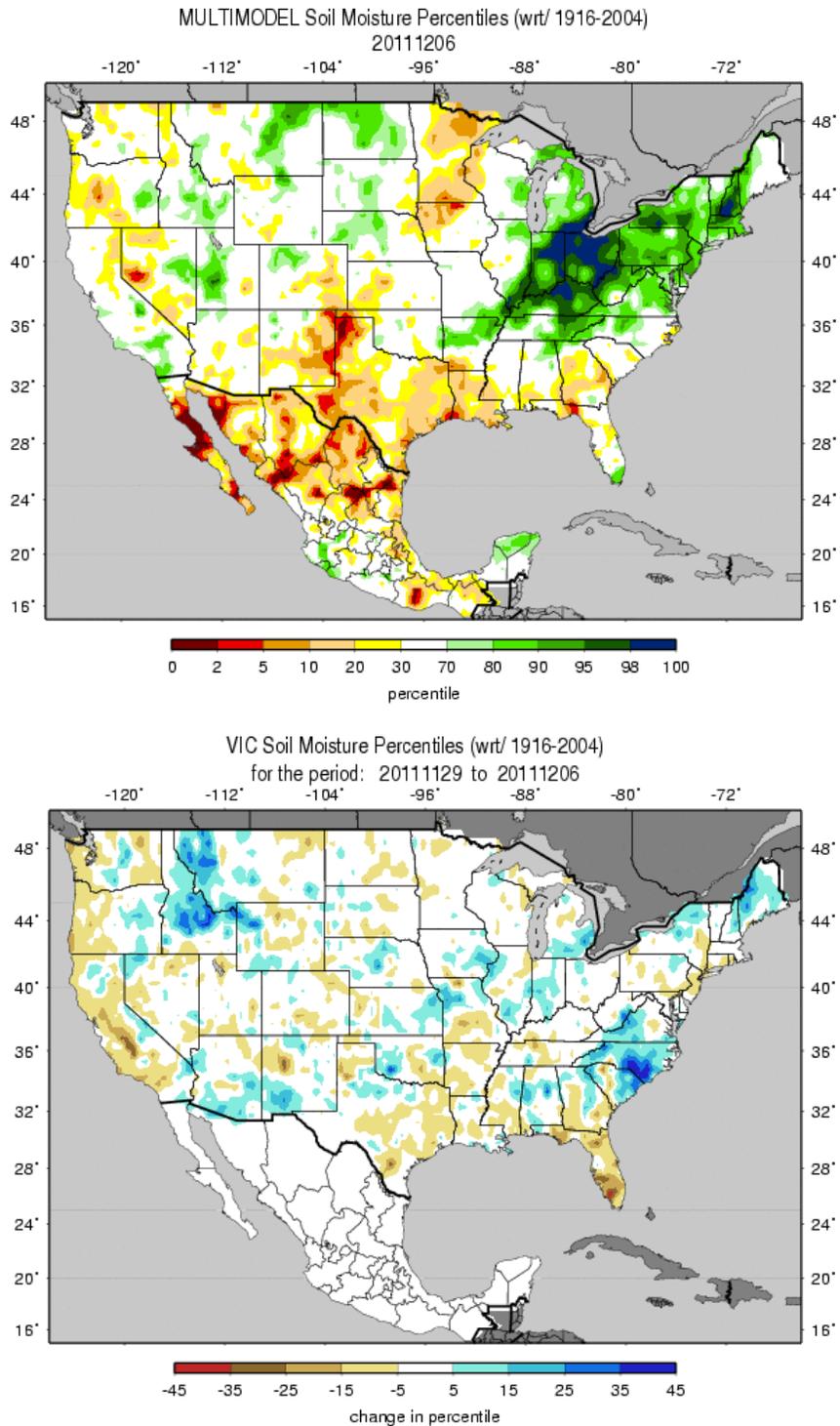
<http://droughtmonitor.unl.edu>



Released Thursday, December 8, 2011
David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

Fig. 4b(5): **Currently**, ~3% of **Kansas** is experiencing “Exceptional” D4 drought and 14% of the state is in D3 and D4 drought. Overall, this represents a 3% improvement in D3 and D4 this week.

Weekly Snowpack and Drought Monitor Update Report



Figs. 5a and 5b: Soil Moisture ranking in percentile as of 5 December (top) shows no significant changes in wet and dry areas this week. During the week, the only notable differences were over the Carolinas and the Northern Rockies (Bottom).

Weekly Snowpack and Drought Monitor Update Report

Soil Climate Analysis Network (SCAN)

Station (808) MONTH=2011-11-08 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision Thu Dec 08 09:33:43 PST 2011

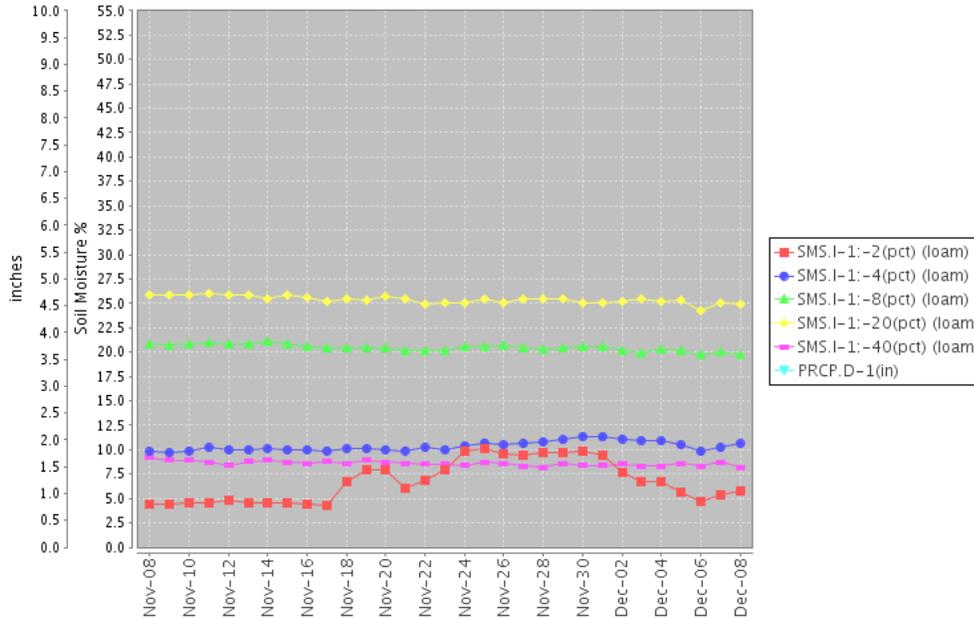


Fig. 6a: This NRCS resource shows a site over [southwest Montana](#) with no moisture trends at all depths.

Station (2012) MONTH=2011-11-08 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision Thu Dec 08 09:35:25 PST 2011

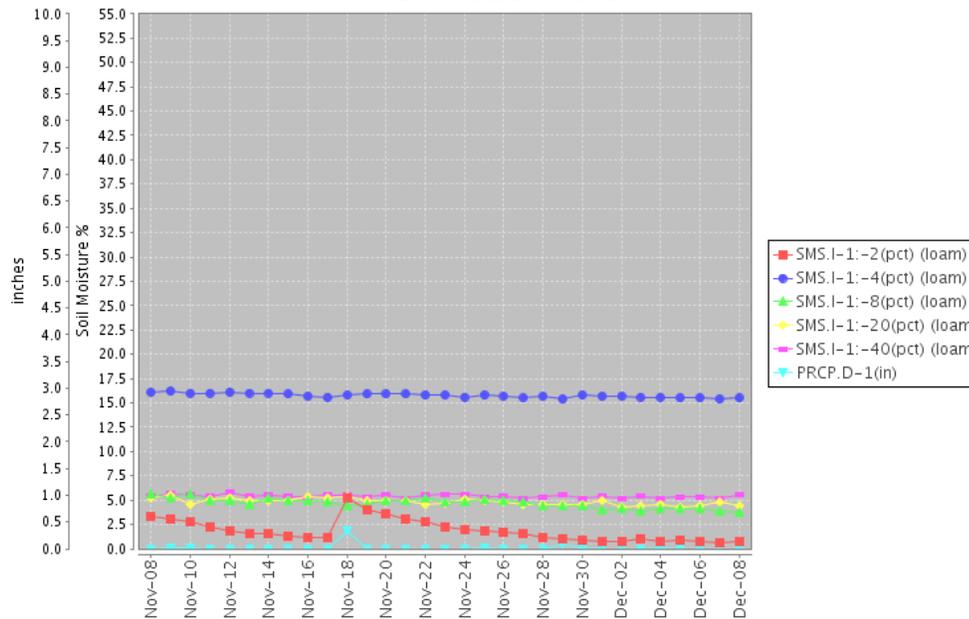
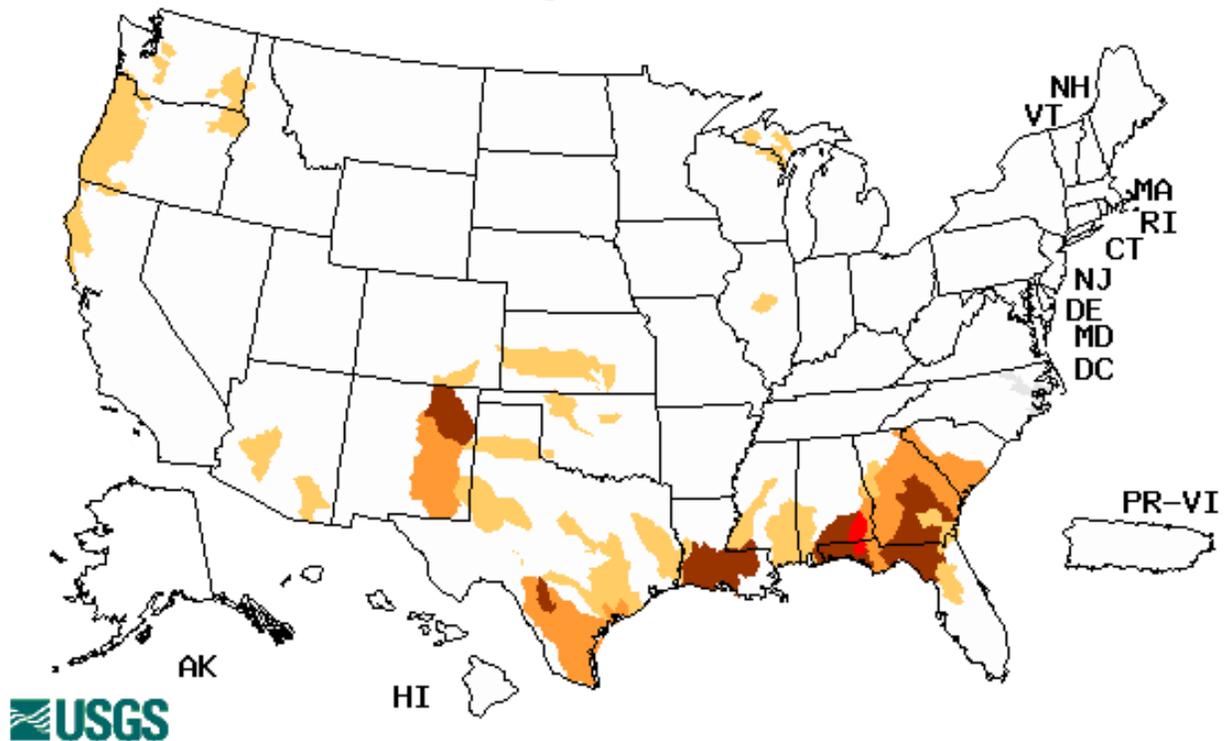


Fig. 6b: This SCAN station is located in [central Florida](#) shows a slow decreasing trend due to a lack of precipitation.

Weekly Snowpack and Drought Monitor Update Report

Wednesday, December 07, 2011



Explanation - Percentile classes				
Low	≤ 5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

Fig. 7: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. **Extreme** conditions have developed over the Florida Panhandle and southeast Alabama.

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- December 6, 2011

The discussion in the Looking Ahead section is simply a description of what the official national guidance from the National Weather Service (NWS) National Centers for Environmental Prediction is depicting for current areas of dryness and drought. The NWS forecast products utilized include the HPC 5-day QPF and 5-day Mean Temperature progs, the 6-10 Day Outlooks of Temperature and Precipitation Probability, and the 8-14 Day Outlooks of Temperature and Precipitation Probability, valid as of late Wednesday afternoon of the USDM release week. The NWS forecast web page used for this section is: <http://www.cpc.ncep.noaa.gov/products/forecasts/>.

Weekly Weather Summary: As the week commenced, a strong storm system in the Northeast quickly departed, bringing tranquil weather to the East and Southeast for the remainder of the week. In the Southwest, however, an upper-air low developed and intensified, generating strong winds in the Southwest, especially southern California, and gradually spreading precipitation and colder air into the Four Corner States. Parts of Arizona, New Mexico, and southern Colorado received between 1 and 2.5 inches of precipitation. As this system tracked eastward into the Nation's midsection over the weekend, moderate to heavy precipitation (more than 2 inches) fell from central Texas northeastward into the eastern Great Lakes by Tuesday morning. Heavy rains (more than 4 inches) were reported in parts of northeastern Texas, northwestern Louisiana, southern and eastern Arkansas, western sections of Tennessee and Kentucky, and southeastern Missouri. A second band of light to moderate precipitation (1 to 2 inches) occurred from central Kansas northeastward into southern Wisconsin. In contrast, little or no precipitation fell on the West, northern Plains and upper Midwest, and Southeast (from southeastern Louisiana eastward to the Carolinas). Temperatures averaged below normal in the western half of the Nation and in the Southeast, while milder weather was limited to the Northeast, Great Lakes region, and northern Plains.

Southeast: After last week's beneficial (and torrential in some areas) precipitation in most of the Southeast, much drier weather returned to southern and eastern sections. Heavy rains, however, were not absent from the South as western and northern Louisiana, Arkansas, northwestern Mississippi, and western Tennessee received 2 to 4 inches of rain, with local totals to 6 inches. Short-term deficits (30- and 60-days) were effectively eased or erased in western Louisiana and southern Arkansas, but medium (6 to 12 months) to long-term (more than a year) departures still remained (20 to 30 inches). As a result, a 1-category improvement was made to the D4 area on the Louisiana and Texas border where 6-month and year-to-date deficits were noticeably less than surrounding areas. In contrast, the SPI blend indicated that D4 still remained in this region. Elsewhere, D0 to D3 1-category improvements were made further north where recent conditions have been wetter, this week's precipitation totals were greater (3 to 5.5 inches), and long-term deficits were smaller. In northwestern Alabama, another week with light to moderate precipitation (0.7 to 1.5 inches) effectively alleviated the D0(S). At 12-months, a large precipitation anomaly gradient existed between northern Arkansas (20 inch surplus) and northwestern Louisiana (20 inch deficit).

In contrast, much different weather prevailed to the east as locations from southeastern Louisiana to Florida and northward into the Carolinas saw little or no rain. In southeastern Louisiana, southern Mississippi and Alabama, and parts of southern Georgia and the Florida Panhandle, 60 and 90-day precipitation has been less than half of normal, with accumulated shortages of 5 to 10 inches. Many USGS averaged stream flows at 7-, 14-, and 28-days were

Weekly Snowpack and Drought Monitor Update Report

below the tenth percentile as of Dec. 6. With this information, D0 and D1 was expanded slightly northward, and D2 spread into southeastern Louisiana. Some slight expansion of dryness and drought was made in counties (Wakulla, Jefferson, Taylor) near Tallahassee, FL, which is flirting with its driest year on record (since 1893), and in northeastern Florida (Alachua County) where short-term (and long-term) deficits are accumulating and affect prairie wildlife. Farther north, growing short-term (out to 90-days) precipitation deficiencies called for expansion of D0(SL) into the central and southern Coastal Plains of North Carolina.

Southern and Central Plains: Widespread welcome precipitation fell across much of Texas, Oklahoma, and Kansas as the recent bouts of precipitation (since mid-September) have greatly eased or eliminated short-term deficiencies. Unfortunately, long-term deficits remained, especially after the driest 12 months on record (Oct 2010-Sep 2011) in Texas and near-record 12-month dryness in surrounding states (OK, LA, NM) that was exacerbated by the record summer heat, which will take time and continued surplus precipitation for major improvement. Nevertheless, 2 to 4 inches of rain from central Texas northeastward into southeastern Oklahoma, plus 1 to 2 inches in parts of northern Texas, southern Oklahoma, and central and northern Kansas, were enough to make a dent in some of the severe, extreme, and exception drought areas. In addition, 0.5 to 1 inches in the Texas Panhandle and the remainder of Oklahoma and Kansas also brought some modest improvements. But not all areas of Texas saw relief from the rains. For example, although parts of central and eastern Texas received between 1.5 and 3 inches of rain, SPI blends, long-term deficits (at 18-months, 25 to 35 inches), and soil moisture values still at D4 levels, and conditions were kept status-quo there. Farther north, where recent conditions have been better and long-term shortages were not as great as further south, the light to moderate precipitation (1 to 2 inches) provided a general 1-category improvement in most of Kansas. In western, southwestern, and southern Texas, the precipitation was light enough (less than 0.5 inches) to prevent deterioration, but not large enough for improvement.

Midwest and Northern Plains: For the second week in a row, light to moderate precipitation (1 to 2 inches) fell on southern and eastern sections of the Midwest, except this week's 1 to 2 inch amounts were shifted a bit farther to the north and west. This allowed for improvement of short-term D0 and D1 areas in northern Missouri, southwestern, southeastern, and extreme northeastern Iowa, and southeastern Nebraska. The recent wet spell has eliminated precipitation shortages out to 90-days (where D0 was erased), and greatly diminished short-term deficits where the remaining D0 and D1 were.

In contrast, weekly totals sharply dropped off to the north and west, and little or no precipitation was observed in the Dakotas, most of Minnesota, northeastern Nebraska, and extreme northwestern Iowa. Although fall and winter normal are generally low in the northern Plains and upper Midwest, an extremely dry autumn and early December called for an expansion of D1 into areas with 25 to 50 percent of normal precipitation during the past 90 days (e.g. east-central and northwestern Minnesota). Elsewhere, no changes were made.

The Southwest: Early in the period, a strong upper-air low developed and intensified across the region. The low initially brought strong winds to parts of the region, including Santa Ana winds gusting to near 100 mph in southern California. Later, the storm generated widespread light to moderate precipitation (0.3 to 1.5 inches), enough to prevent deterioration but not enough to improve conditions (e.g. status quo). Some exceptions to this were in central Arizona (up to 2.6 inches) where 90- and 180-day deficits were close to zero (D1 to D0), in southwestern New Mexico (two straight weeks of 0.5 to 1.5 inches of precipitation) where small surpluses existed

Weekly Snowpack and Drought Monitor Update Report

out to 180-days (D3 to D2), and in northwestern New Mexico (0.5 to 1 inches this week, 0.2 to 0.5 inches last week) where the Water Year SNOTEL Snow Water Content (SWC) stood at 124 percent of normal in the Rio Chama Basin. So far this water year, the mountain basins in central Arizona and northern New Mexico have observed above normal basin average precipitation and SWC. Accordingly, a general one-category improvement was made on the D0 to D2 areas.

The Northwest: In stark contrast to last week's moderate to heavy precipitation from the Cascades westward, much quieter and cooler weather prevailed across the Northwest this week. Although it is still early in the water year (since October 1), precipitation has averaged about half to two-thirds of normal in the SNOTEL mountain basins of Oregon, California, and Nevada, according to the USDA/NRCS. And in the Intermountain West, precipitation has been even more spotty and minimal. During the past 90- and 180-days, 25 to 50 percent of normal precipitation, and in some locations 10 to 25 percent, have fallen, and these D0 "watch" areas were expanded to include northeastern California, northwestern Nevada, and south-central Washington. Fortunately, normal are generally low in this region thus generating relatively small deficits. Precipitation, however, will be needed soon during the normally wet winter months to prevent degradation of conditions.

Hawaii: Early in the period (Tuesday through Friday), scattered light showers (daily totals between 0.25 to an inch, locally 1 to 3 inches) occurred mainly on the windward side of the islands while little or no rain fell on the leeward locations. By the weekend, shower activity greatly diminished across all of Hawaii, with most stations reporting no rain the rest of the week. On Oahu, subnormal November rainfall over the Koolau Range resulted in the spreading of D0 there. On the Big Island, spotty leeward November rainfall in the upper elevations of South Kohala and in the Pohakuloa region of the Hamakua District led to USDA/FSA reports of conditions similar to 2010 (bad). Ranchers have been destocking pastures and selling replacement heifers which will have long-term effects. Accordingly, D3(S) was extended southwestward from the northwestern portion into the central part of the island.

In contrast, some pasture regrowth occurred from Kepuni to Kaupo on southeast Maui from early November rains, but missed the southwestern section. As a result, D3(S) became D2(S) in southeastern Maui. On the Big Island, over 20 inches of rain in November on the east-facing slopes alleviated D0 there. There were no changes made for Kauai, Molokai, and Lanai.

Looking Ahead: For the ensuing 5 days (December 8-12), a storm system will track off the East Coast by late Thursday, bringing moderate to heavy precipitation to the mid-Atlantic and New England, with snow possible in parts of the central and northern Appalachians. Once this system departs, much quieter and colder weather will envelop the lower 48 States. The exceptions to this include light to moderate rain in southern Texas and most of Florida, especially the Atlantic side. A weak clipper system may bring light precipitation from the northern Rockies to the lower Great Lakes region, and a cold front will approach the West Coast late in the period.

The CPC 6-10 day outlook (December 13-17) indicates enhanced odds for above-normal precipitation in the lower and middle Mississippi, Tennessee, and Ohio Valleys, Great Lakes region, and Alaska. Subnormal precipitation is favored from the central Pacific Coast and Great Basin eastward into the northern and central Plains, and in Florida. Temperatures are expected to average below normal in the western third of the U.S. and above-normal in Alaska and the eastern third of the Nation.

Weekly Snowpack and Drought Monitor Update Report

Author: [David Miskus, NOAA/NWS/NCEP/Climate Prediction Center](#)

Dryness Categories

D0 ... Abnormally Dry ... used for areas showing dryness but not yet in drought, or for areas recovering from drought.

Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

Drought or Dryness Types

S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)

L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

Updated December 7, 2011